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### **Subject: Copper Flat Copper Mine Draft Environmental Impact Statement.**

The Surface Water Quality Bureau (SWQB) of the New Mexico Environment Department has reviewed the draft Environmental Impact Statement for the Copper Flat Mine located in Sierra County. Several general comments are included below, in addition to more specific comments about water quality implications for the proposed action, alternatives and no-action alternative. The comments below pertain only to surface water.

#### Proposed Action and Alternatives

The draft EIS contains two alternatives to the proposed action—the resumption of mining activities at the currently idle copper mine at a rate of 17,500 tons per day (tbd) for 16 years. The two alternatives differ from the proposed action in their scale of operation, with Alternative 1 processing ore at a rate of 25,000 tbd for 11 years. Alternative 2, the BLM's preferred alternative would process 30,000 tbd also for 11 years. There is also a no-action alternative in which mining activities would not resume and the current site would be reclaimed according to BLM standards and NMED requirements for disturbances created during exploratory activities. The three action alternatives are very similar in their methods and materials for mining operations and post-mining reclamation, however the two alternatives to the proposed action results in operational efficiencies due to increased production capacity. All action alternatives share the same 12 year post-closure monitoring and maintenance requirement following cessation of mining and reclamation activities.

#### General Comments

- The post-closure status of the pit lake in the proposed action (page 2-9) describes an annual inflow into the pit lake from all sources as 101 Acre Feet/Year, with annual evaporative losses of 100 Acre Feet/Year resulting in the potential for water movement from the lake into groundwater. However, the pit lake is later described (page 3-22) as a "hydrologic evaporative sink" and therefore not subject to NMAC 20.6.7.33 water quality standards for open pits. Please address this discrepancy.

- Two tables on page 3-55 describe the predicted surface water depletion rates for nearby surface waters on an annual and cumulative basis under the three action alternatives. However, the annual rates do not match the predicted cumulative rates based on the proposed mine life. For example, under the proposed action, Las Animas Creek would be depleted of an estimated 12 acre feet per year (table 3- 15) for the 16 years the mine is operational, resulting in 192 acre-feet. However, table 3-16 suggests that the cumulative surface water depletion for Las Animas Creek would be 140 acre feet following completion of mining. Please address this discrepancy.
- Under all the action alternatives, the post-closure monitoring and maintenance period is limited to 12 years. The SWQB feels this is an inadequate time frame to determine whether the mitigation measures and reclamation have been successful to prevent erosion and water quality degradation in perpetuity. Given the unpredictability of high flow events in arid regions and the potential for manufactured items like geotextile to degrade and become ineffective, the SWQB recommends a minimum 30 year monitoring period.

### Affected Surface Waters , Designated Uses and Water Quality Standards

All action alternatives will directly affect two surface waters and indirectly affect two adjacent surface waters. Waters directly impacted include Greyback Arroyo an ephemeral-to-intermittent watercourse that bisects the project area and the mine “pit lake” which is a perennial surface water maintained by groundwater and precipitation inflows.

#### *Greyback Arroyo*

In the draft EIS, Greyback Arroyo is considered an ephemeral stream and the water quality discussion (page 3- 25) including relevant designated uses and water quality standards derives from this assumption. However, the SWQB has never formally assessed Greyback Arroyo and there are several indicators which suggest that portions of the water body within the mine permit boundary are intermittent and would have different designated uses and more stringent water quality standards. The vegetation classification (page 3-143) lists several species within Greyback Arroyo that would not be found in ephemeral streams—these include Goodings willow, cottonwood, cattail, velvet ash and little walnut. Additionally, water quality samples were successfully obtained from water that had pooled within the arroyo during the months of April, August and October, suggesting that standing water is present outside the typical rainy months of July, August and September. The significant difference between ephemeral and intermittent water quality standards is the application of chronic criteria for metals, whereas ephemeral streams are subject to only the acute criteria for metals.

#### *Pit Lake*

The pit lake is an unassessed water of the state with warmwater aquatic life, livestock watering, wildlife habitat and primary contact designated uses. Based on baseline water quality surveys conducted in 2011 and 2012, the lake has concentrations of cadmium, copper, manganese, and selenium which exceed the state water quality standards.

#### *Las Animas Creek*

While outside the mine permit boundary, Las Animas Creek is a perennial stream lying north of the Copper Flat Mine. The creek was most recently assessed by the SWQB in 2011 and was found to have two impairments for aquatic life uses—dissolved oxygen and benthic macroinvertebrates.

### *Percha Creek*

Percha Creek is a perennial water lying to the south of the Copper Flat Mine. The creek was most recently assessed by the SWQB in 2011 and was found to be in attainment for all designated uses.

### Water Quality Implications for Proposed Action and Alternatives

The Copper Flat Mine as it currently exists is an industrial brownfield resulting from prior mining activities in the 1980s when mining regulations and water quality protections were less stringent than present day. The tailings storage facility is unlined and a sulfate plume has been detected in the groundwater east and downgradient of the mine site. Waste rock piles are unreclaimed to the standards currently in use under the 2013 “Copper Rule” which stipulates a minimum of 36” earthen cover. These piles may contain acid generating material and their exposure to oxygen and water creates a potential for surface water pollution. All action alternatives would necessitate modernization of the existing mine site to current environmental standards and consequently are a net benefit for surface water in the immediate area.

### *Greyback Arroyo*

Prior mining operations diverted accumulated storm water in the upper watershed around the mine facility, waste rock piles and tailings storage facility to prevent run-on erosion of these materials. The no-action alternative would not improve the existing site conditions through modernization of storm water handling and reclamation of the tailings and waste rock. All action alternatives including the proposed action and the BLMs preferred alternative (#2) would likely improve current water quality conditions and effect greater surface water quality protections in the future. This improvements will be direct and durable provided the closure plan and reclamation is both successful, monitored and maintained.

### *Pit Lake*

During the 30 year cessation of mining activity, the pit lake has filled via a combination of groundwater inflow and aerial precipitation and runoff from surrounding slopes. The current water quality gives some indication of what future water quality may look like once mine operations cease. Based on the data taken during in 2010 and 2011 for the baseline characterization study, several samples would have violated the water quality standards for the pit due to elevated levels of cadmium, copper, manganese, and selenium. Groundwater wells within the vicinity of the pit contain water of generally higher quality than that observed in the pit lake, suggesting the current water quality of the pit is the result of surface water interacting with the native rock and ore bodies. Under the proposed actions and two alternatives, the pit lake would be dewatered during mining operations and a post-mining pit lake water quality management plan would be required within 1 year of active mining. While the draft EIS does not contain specifics about this water quality management plan, it does suggest strategies that have been effective at other mines in semi-arid locations.

The no action alternative will not lead to any water quality improvements, and may actually degrade water quality as the existing surface water continues to interact with the ore body and sulfide bearing material within the pit and evaporative losses concentrate the dissolved solids. The SWQB supports the BLMs preferred alternative (#2) to accelerate operations and mine a

larger proportion of the ore body, thereby reducing the amount of sulfide bearing minerals that could be a source for future water quality degradation. The SWQB supports many of the recommendations for pit lake water quality mitigations including rapid filling of the pit lake to prevent the oxidation of sulfide bearing materials within the walls of the pit. Rapid filling would also allow the BLM to more quickly address any water quality issues that may arise once the lake is at capacity, instead of waiting decades for the lake to fill via groundwater and precipitation inputs.

#### *Las Animas and Percha Creeks*

Neither Las Animas or Percha Creeks will be directly affected by mining activity. However, they will be indirectly affected by groundwater withdrawals which will, based on the groundwater modeling projections, remove 12 and 18 acre feet per year from Las Animas Creek and Percha Creek, respectively. In terms of water quality impact, this is likely immeasurable as those withdrawals are a minor percentage of streamflow and evapotranspiration within the drainages. The proposed action and preferred alternative will not likely affected water quality on these two Creeks.

The Surface Water Quality Bureau recognizes that this draft EIS is just one of the many steps required prior to reinitiating mining activities at Copper Flat. Based on the information presented in this draft EIS, the Surface Water Quality Bureau views both the proposed action and preferred alternative to be protective of surface water quality. Assuming the stated mitigations and relevant environmental regulations are implemented, the SWQB does not anticipate long-term impacts to surface water quality and improvements to the current water quality in Greyback Arroyo and the Pit Lake may result. We appreciate the opportunity to comment on this important document and will continue to stay engaged through the permitting and regulatory processes should the Copper Flat Mine be approved for operation.

Sincerely,

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Ec: Tom Skibitski, NMED Environmental Review Coordinator